

Remarks

Applicants have received and carefully reviewed the Office Action mailed March 22, 2007. Claims 1-54 are pending, with claims 31-35 withdrawn by this response. Claims 1, 3, 5, 6, 10-13, 17, 25, 42, and 53 have been amended. Support for the amendments is found in the specification, claims, and drawings as originally filed. No new matter has been added. Reconsideration and allowance of the pending claims are respectfully requested.

Information Disclosure Statement

Applicants filed an IDS on October 6, 2004, but an initialed 1449 has not been received. The Examiner is respectfully requested to consider, initial, and return a copy of the 1449 with the next Office Action.

Allowable Subject Matter

Applicants thank the Examiner for indicating that claims 6-8 and 21 would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Applicants also note that claims 15, 18, and 50-52 were not included in any prior art rejections, thus it appears that while these claims do have §112 rejections, the claims are allowable over the prior art.

Objection to the Claims

Claim 13 is objected to for a typographical error. The claim has been amended as suggested by the Examiner.

Rejection under 35 U.S.C. § 112, first paragraph

Claim 15 is rejected as failing to comply with the written description requirement. The Examiner asserts that, while the specification does describe the exact limitations in claim 15, there is no further explanation of why the recited ratio would make the pump more efficient.

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Applicants submit that the written description requirement appears to have been met because the specification does, in fact, describe the claimed elements. MPEP 2163 III.A.(B) states:

A description as filed is presumed to be adequate, unless or until sufficient evidence or reasoning to the contrary has been presented by the examiner to rebut the presumption. See, e.g., *In re Marzocchi*, 439 F.2d 220, 224, 169 USPQ 367, 370 (CCPA 1971). The examiner, therefore, must have a reasonable basis to challenge the adequacy of the written description. The examiner has the initial burden of presenting by a preponderance of evidence why a person skilled in the art would not recognize in an applicant's disclosure a description of the invention defined by the claims. *Wertheim*, 541 F.2d at 263, 191 USPQ at 97. In rejecting a claim, the examiner must set forth express findings of fact regarding the above analysis which support the lack of written description conclusion. These findings should:

(A) Identify the claim limitation at issue; and

(B) Establish a prima facie case by providing reasons why a person skilled in the art at the time the application was filed would not have recognized that the inventor was in possession of the invention as claimed in view of the disclosure of the application as filed. A general allegation of "unpredictability in the art" is not a sufficient reason to support a rejection for lack of adequate written description.

The Examiner appears to be asserting that the specification must provide a detailed explanation of why the claimed and described ratio would make the pump more efficient. Applicants submit that this is not the standard of the written description requirement. As stated above, an original claim is presumed to be described absent sufficient evidence to the contrary. The Examiner has provided no evidence and has merely asserted that no further explanation of why the claimed and described ratios work. Applicants submit that one of ordinary skill in the art would understand the specification and claims as written, and would understand that the details provided for the ratio calculations indicate that the Applicants were in possession of the claimed subject matter at the time the invention was made. Applicants further submit that the standard for written description does not require a detailed description of why the invention works, but rather requires a description of how to practice the invention. The Examiner does not appear to

question that the specification provides an adequate description of how to perform the invention, thus the description and claims meet the requirements of 35 U.S.C. § 112, first paragraph.

Claims 17 and 18 are rejected as failing to comply with the enablement requirement. The Examiner's attention is directed to the specification at page 6, lines 12-21, and page 17, line 19 through page 18, line 11, where a detailed description of how the variables are selected to provide the desired result. Applicants submit that the specification thus provides the required description to enable one of ordinary skill in the art to practice the invention. Reconsideration and withdrawal of the rejections are respectfully requested.

Rejection under 35 U.S.C. § 112, second paragraph

Claims 50-52 are rejected as being indefinite. The Examiner asserts that the "means" recited in claim 50 could all be the same element or could be referring to different elements, thus it does not distinctly claim the subject matter of the invention. Applicants respectfully disagree. MPEP 2173.04 states:

Breadth of a claim is not to be equated with indefiniteness. *In re Miller*, 441 F.2d 689, 169 USPQ 597 (CCPA 1971). If the scope of the subject matter embraced by the claims is clear, and if Appellants have not otherwise indicated that they intend the invention to be of a scope different from that defined in the claims, then the claims comply with 35 U.S.C. 112, second paragraph.

Appellants submit that while the use of "means" in claim 50 may broaden the scope of the claim, the scope of the subject matter embraced by the claim is clear, as indicated by the Examiner's explanation of the various parameters covered by the term. Reconsideration and withdrawal of the rejection are respectfully requested.

Rejection under 35 U.S.C. § 102(b)

Claims 1-5, 9-12, 14, 16, 17, 20, 22-30, 36-41, and 53-54 are rejected as being anticipated by Reader (US 3,554,669). Independent claim 1, as amended, recites:

1. (currently amended) An ion pump comprising:
an insulating layer;

a first conductive layer situated on a first side of the insulating layer;
a second conductive layer situated on a second side of the insulating layer;
a plurality of openings situated in the first conductive layer, the insulating layer and the second conductive layer forming channels having first and second discharge device electrodes, wherein the plurality of openings are grouped into inputs and outputs, and the openings situated at inputs are sharp-like conductor openings and the openings situated at outputs are non-sharp-like conductor openings; and
an enclosure containing the channels and having an input port proximate to an input side of the plurality of openings and an output port proximate to an output side of the plurality of openings.

Reader does not appear to teach such a structure. In particular, Reader teaches, "Projections 18 formed between the channels 16 are tapered to form sharp tips 18a at their downstream end", emphasis added; see column 2, lines 36-38. Reader thus appears to teach sharp tips at the output openings, rather than the inputs, as is recited in the claims.

Independent claim 22 recites an ion pump in which a flow direction of the flow channel proceeds from a prominent conductive material to a non-prominent conductive material, wherein the conductive materials are electrodes forming the discharge device. Reader appears to teach a device in which flow is from a rounded opening 16 towards the sharp tip 18a opening. See FIGS. 1 and 2. The device of Reader thus appears to have the opposite configuration as that claimed.

Independent claim 25, as amended, recites, in part, "the first conductive material has a projection into the channel" and "a flow direction of the channel is approximately parallel to the elongated dimension through the non-conducting spacer material and proceeds from the projection into the channel." Emphasis added. As discussed above, Reader appears to teach a device having sharp tips 18a at the downstream location of the openings, and thus appears to have a configuration reversed to that claimed.

Independent claim 36 recites, in part, "wherein the first orifice has a sharp-like contour to achieve local high intensity electric fields." As discussed above, Reader appears to teach a sharp tip 18a at the second opening, as shown in FIGS. 1 and 2.

Independent claim 53, as amended, recites, in part, "a plurality of openings situated in the first conductive layer, the insulating layer and the second conductive layer forming channels having first and second discharge device electrodes, respectively, wherein the openings in the first conductive layer at the first discharge device electrodes have a sharp point." Emphasis added. As discussed above, Reader appears to teach sharp tips 18a at the exit of the first conductive layer. See FIGS. 1 and 2.

For at least the reasons set forth above, Reader does not appear to teach each and every element of the independent claims or the claims dependent thereon. Additionally, there is no motivation or suggestion for one of ordinary skill in the art to modify Reader to achieve the claimed device. Reconsideration and withdrawal of the rejection are respectfully requested.

Rejection under 35 U.S.C. § 103(a)

Claim 13 is rejected as being unpatentable over Reader. For at least the reasons set forth above, Reader does not appear to teach each and every element of independent claim 1, from which claim 13 depends. Additionally, there is no motivation for one of ordinary skill in the art to modify the device of Reader to achieve the claimed device. Reconsideration and withdrawal of the rejection are respectfully requested.

Claim 19 is rejected as being unpatentable over Reader in view of Fischer (US 6,583,407). For at least the reasons set forth above, Reader does not appear to teach each and every element of independent claim 1, from which claim 19 depends. Fischer does not appear to teach what Reader lacks. Additionally, there is no motivation for one of ordinary skill in the art to modify the devices of Reader and/or Fischer to achieve the claimed device. Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 42-46 and 49 are rejected as being unpatentable over Reader in view of Henoch (US 6,106,236). Independent claim 42, as amended, recites, in part, "shaping the first electrode to have a sharp-like opening at a first end so as to be suitable for providing a corona of ionization of a fluid." As discussed above, Reader does not appear to teach such a structure or method step of providing such a shape to the first electrode. Henoch does not appear to provide what Reader

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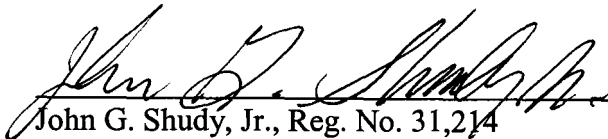
lacks. Thus, even if one were to combine the teachings of Reader and Henoch, one would not arrive at the claimed method. Further, there is no motivation for one of ordinary skill in the art to modify Reader and/or Henoch to achieve the claimed method. Reconsideration and withdrawal of the rejection are respectfully requested.

Claims 47-48 are rejected as being unpatentable over Reader in view of Henoch and further in view of Fischer (US 6,583,407). For at least the reasons set forth above, neither Reader nor Henoch teaches or suggests the basic elements of claim 42, from which claims 47-48 depend. Fischer does not appear to provide what Reader and Henoch lack, as discussed above. Reconsideration and withdrawal of the rejection are respectfully requested.

Reconsideration and reexamination are respectfully requested. It is submitted that, in light of the above remarks, all pending claims are now in condition for allowance. If a telephone interview would be of assistance, please contact the undersigned attorney.

Respectfully submitted,

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John G. Shudy, Jr., Reg. No. 31,214
CROMPTON, SEAGER & TUFTE, LLC
1221 Nicollet Avenue, Suite 800
Minneapolis, MN 55403-2402
Telephone: (612) 677-9050
Facsimile: (612) 359-9349